

Fasciotomy for Swollen Limbs

THE USE OF FASCIOTOMY for decompressing the osteofascial compartments of the extremities following arterial trauma and its subsequent repair has been known to vascular surgeons since the days of World War II when arterial repairs became a surgical feasibility. This became emphasized again with the Korean conflict and has become a basic surgical tenet. The need for fascial release of the ischemic muscular compartment is also well known to orthopedists. Surgeons with military experience have seen extremities with successful arterial repairs lost because of compartmental necrosis where appropriate fasciotomy was not carried out. Although some argue that not all repaired arterial trauma requires fasciotomy, there is uniform agreement that arterial trauma with delay of more than ten to twelve hours before repair is an absolute indication for osteofascial decompression.

In addition to fasciotomy for vascular embarrassment due to vessel trauma, the procedure is also recognized as an important part of the management of severely comminuted fractures with associated soft tissue injury and compartmental swelling. The iatrogenically produced compartmental swelling following a blind nailing of tibias and the indiscriminate use of Bryant's traction are less known reasons for fascial release of the leg. The forearm fasciotomy for Volkmann's ischemia is well known. Fasciotomy for venous compression problems encountered in drug addicts who have lain comatose on an extremity for a prolonged period are well recognized, as is the need for fascial release in the "crush syndromes." The swollen limb following snake-bite, and also following the paint-gun injury, often calls for fascial release.

The spontaneous onset of the acute anterior compartment syndrome following strenuous sports activity or marching demands urgent fascial decompression to prevent irreparable neuromuscular injury.

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Knee-Joint Replacement

ALTHOUGH EARLY RESULTS of knee-joint replacement are promising, they suffer by comparison with results of total hip-joint replacement, both as to postoperative morbidity and to relief of pain. Although the immediate serious complication rate does not appear to be higher, there is justifiable concern about long-term joint stability, prosthetic fixation within bone, and wearability.

The two basic types of tibiofemoral knee-joint replacements may be classified as hinged (constrained) and condylar (non-constrained). Neither is truly a total knee-joint replacement, however, since the patella, often also involved with arthritis, is not replaced. The early all-metal hinge units of Walldius have undergone extensive changes in design and materials since they were introduced in the 1950's. These joints rely on intramedullary prongs that extend into the femur and tibia for fixation. The units are rather heavy and bulky and, when implanted as press-fit devices, tend to loosen in bone. Some surgeons have utilized methyl methacrylate, used so successfully in hip-joint replacements, as an adjunct to fixation; however, despite more rigid immediate fixation, this tendency to loosening may still occur, particularly in patients with osteoporosis. Nevertheless, substantial relief of pain, often with improved function, is a reasonable goal for the severely disabled arthritic patient with considerable built-in restraint. These joints are not intended to withstand vigorous activity. At present, hinge units are indicated primarily for problems of severe joint instability and deformity not amenable to condylar replacement.

The condylar, non-constrained, tibiofemoral units are smaller and utilize a femoral stainless steel or cobalt chrome alloy mated with a polyethylene tibial component or components to replace the articulating joint surfaces. Gunston, who originated this approach to knee replacement, made a significant contribution by relying on ligamentous and capsular structures for stability. Fixation of the components is obtained with methyl methacrylate.

Wound healing, a prime requisite for successful knee-joint replacement with either the hinge or condylar unit, is more difficult to achieve than in the hip region because of the subcutaneous location of the joint.

The science of knee replacement is in its infancy. Progress is encouraging, and many patients are gratified by the early results. However, few of